# Diversity, dynamics and trophic ecology of animal communities associated to Posidonia oceanica (L.) Delile macrophytodetrital accumulation: synthesis of a ten year study

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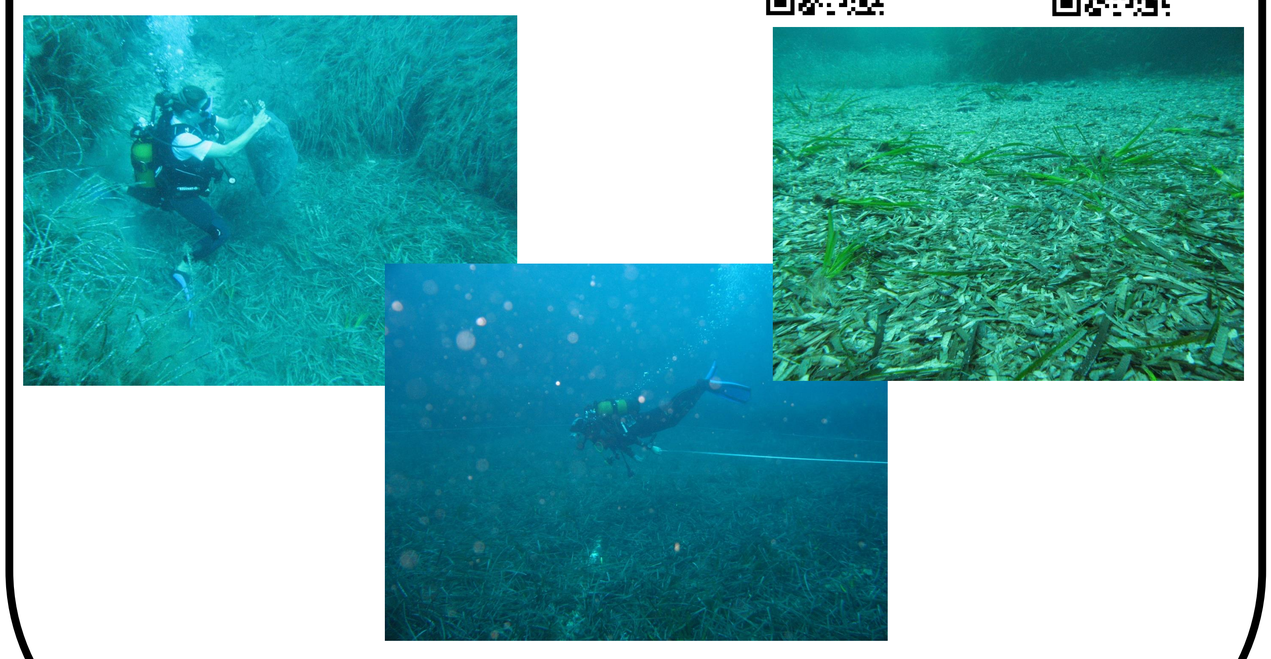
## Introduction

- 50-90 % *P. oceanica* biomass fuels detrital pathway
- Large fraction is exported as dead leaves
- May form large litter accumulation in shallow coastal areas

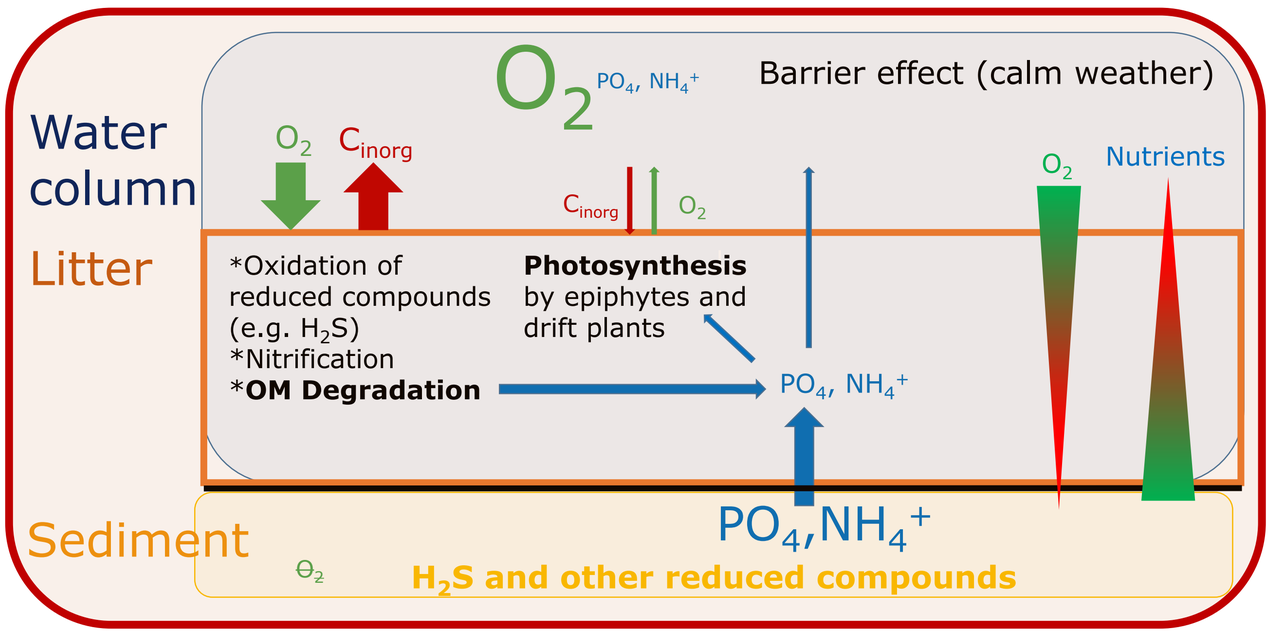


Pictures of *P. oceanica* litter accumulation (10 m depth, Calvi Bay, Corsica, NW Mediterranean)

## Objectives

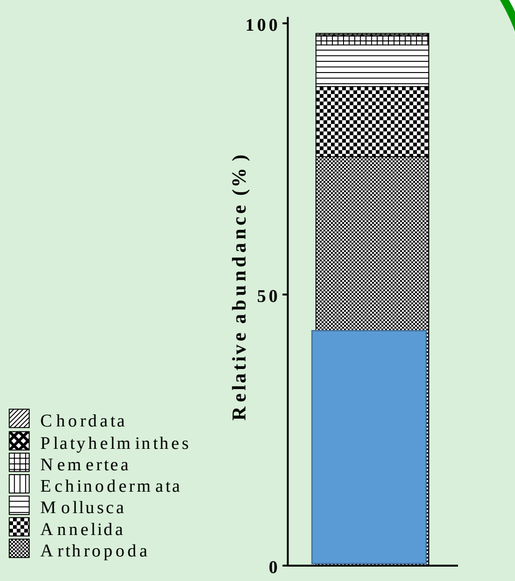
- To determine litter distribution and composition (not shown)
- To characterize their physico-chemistry
- To characterize animal assemblage
- To study trophic web and trophic ecology

→ Work in progress since 2005 in Calvi Bay (Corsica) at STARESO marine station (ULg)

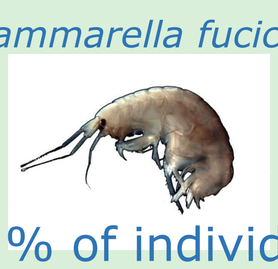



## Faunal assemblage

- Meiofauna dominated by Harpacticoid copepods
- Dominated by less than 10 species
- For both meiofauna and macrofauna:
- less diversity than in seagrass meadow
- but larger density (x 3 to x5)
- Main species tolerant to $O_2$ depletion

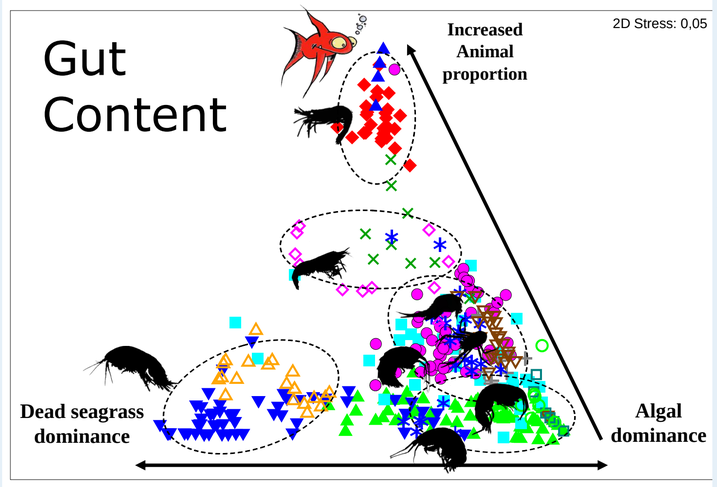



*Gammarella fucicola*

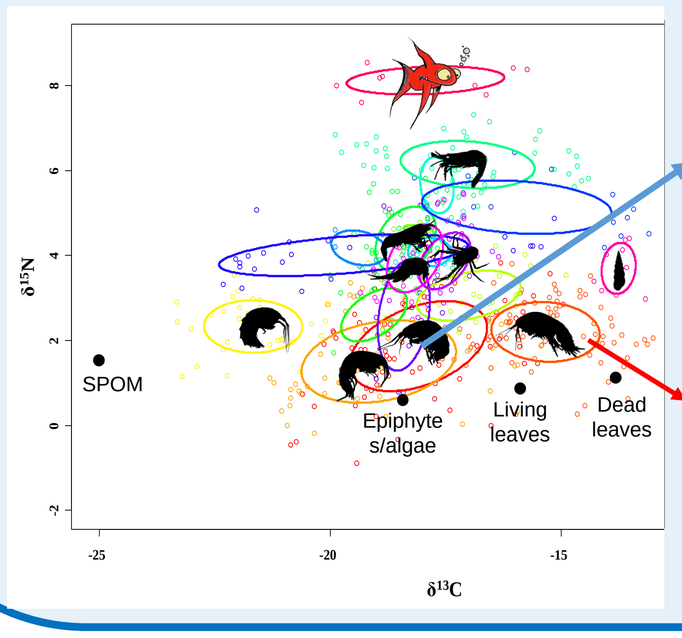


= 40 % of individual number

## Trophic web




- *Gammarella fucicola*
- *Melita hergensis*
- *Gammarus aequicauda*
- *Nototropis guttatus*
- *Galathea intermedia*
- *Nebalia strausi*
- *Athanas nitescens*
- *Palaemon xiphias*
- Fish juveniles and *Gobius sp.*
- *Bittium reticulatum*




- *G. fucicola*
- >40% of animal density
- 20 – 30% assimilated C comes from dead seagrass

- *G. aequicauda*
- 15 – 20 % of animal density
- 50-80 % assimilated C comes from dead seagrass

## TAKE HOME MESSAGE

***Posidonia* litters, found everywhere and every time, are a main actor of the « DARK SIDE » of C cycle in seagrass meadows, represent a huge amount of exported carbon, host complex animal assemblages, less diverse but more abundant than in the bed. This fauna consumes and assimilates seagrass carbon**

Publications related to this project

See also: Champenois & Borges. Limnology and Oceanography (2012), 57(1), 347-361